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BULLETIN
OF THE
TORREY BOTANICAL CLUB

FEBRUARY, 1907

Two new species of *Aytonia* from Jamaica

CAROLINE COVENTRY HAYNES

(WITH PLATES 5 AND 6)

Aytonia Evansii sp. nov.

Thallus light-green, with a narrow purple margin, plane, ovate to linear-oblong, lingulate, 10–14 mm. \times 4–7 mm., innovating from apex or laterally from costa, or dichotomous; margins of thallus elevated, undulate, crisped; width of thallus in cross-section eight times that of maximum height; the epidermal cells somewhat quadrate with distinct trigones, cuticle finely granulate; the stomata small, not elevated above thallus, 4 or 5 cells around the pore in 1 or 2 concentric series; ventral scales vinous-purple, imbricated, scarcely decurrent, lunate or obliquely ovate, reaching beyond thallus and reflexed only at notched apex, well-developed and persistent, however, from base of thallus to apex, tapering gradually to a long lanceolate occasionally geminate point, margins entire: oil-bodies completely filling isolated cells occurring generally through the thallus excepting in epidermal layer: monoicous: ♀ receptacles usually several in a series: androecium situated directly behind ♀ receptacle, furcate, surrounded with purple lanceolate or linear paleae 2–7 cells in maximum width: peduncle 5 mm. long: carpocephalum 2–3-lobed, generally maturing two opposite sporogonia, concave at apex, scales of the carpocephalum lanceolate or linear-lanceolate, 5–12 cells in maximum width, nearly hyaline: spores averaging $87\ \mu$, yellow or brownish, enveloped in a very loose reticulate-rugose exospore: elaters 2–4-spiral, attenuate at ends $223\text{--}306\ \mu$ in length, $13\ \mu$ in maximum width. (PLATE 5.)

The above description has been drawn from material collected on banks, near Portland Gap, Blue Mountains, Jamaica, July 21, 1903, *A. W. Evans 213*.

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Plagiochasma elongatum Lindenb. & G., from Mexico, known to the writer only through descriptions, appears to resemble the Jamaican plant but the latter differs in possessing a shorter and broader frond which is 10–14 mm. long while that of *P. elongatum* reaches 35 mm.; *P. elongatum* has only 2–3 cells around pore, the Jamaican plant 4–5 cells; the ventral scales of *Aytonia Evansii* taper gradually, while those of *Plagiochasma elongatum* are described by Stephani * as abruptly attenuate to the appendiculum.

***Aytonia jamaicensis* sp. nov.**

Thallus light-green with a narrow purple margin, somewhat plane or broadly canaliculate, ovate to linear-oblong, 5–18 mm. \times 5–6 mm., innovating from the apex and from the side of the costa; margins of thallus elevated undulate-crenulate and slightly crisped; width of thallus in cross-section six times that of maximum height; the epidermal cells generally quadrate, showing small trigones; the stomata large, elevated, with 5–8 cells around the pore in 2–4 concentric series: ventral scales vinous-purple, strongly decurrent and approximate in the median ventral line, imbricated, broadly lunate or ovate, projecting beyond margin of thallus only at notched apex, reflexed over the growing point; appendicula ovate-lanceolate, occasionally geminate, strongly constricted, 7–12 cells in maximum width, with a uniseriate apiculum of 1–3 cells in length, margins subentire, undulate-crenate or sparingly toothed: oil-bodies completely filling isolated cells in the colorless stratum of thallus: monoicous: ♀ receptacles usually several in a series on an apical innovation in front of androecium: scales of androecium deltoid or cuneate-ovate: peduncle 11–16 mm. long: carpocephalum 2–4-lobed, generally maturing two opposite sporogonia and then concave or transversely furrowed above or sometimes slightly convex; scales of the carpocephalum lanceolate or linear-lanceolate, 5–14 cells in greatest width, often acuminate with a constriction near the apex: spores averaging 85 μ , yellow or brownish, enveloped in a very loose reticulate-rugose exospore, this easily detachable, spore after removal of exospore averaging 46 μ : elaters 2–3-spiral, occasionally forked, somewhat attenuate at ends, 255–374 μ long, 8 μ in maximum width. (PLATE 6.)

The above description has been drawn from material collected at Chestervale, Jamaica, February, 1903, *L. M. Underwood* 1173 (type) and 1177 [both mixed with *Reboulia hemisphaerica*].

* FRANZ STEPHANI. Species Hepaticarum. Bulletin de l'Herbier Boissier 6: 785. 1898.

The species is related to *Plagiochasma Wrightii* Sulliv., which shows the following differing characteristics : stomata not so much elevated, the 5-8 cells around the pore being in 2 or 3 concentric series ; appendicula not so much constricted, narrower, margins always entire ; peduncle shorter, 2-4 mm. (?) ; scales of the carpocephalum never constricted ; spore distinctly tetrahedral and winged, exospore not so loose. Type duplicate of *P. Wrightii* from Texas in Herbarium Underwood shows 5-8 cells around pore instead of 6 cells as given by Herr Stephani in his *Species Hepaticarum*.

These two Jamaican species differ from each other in shape and size of stomata, form of ventral scales and their appendicula, the position of androecium and in the character of the cuticle.

The above work was done under the supervision of Dr. Marshall A. Howe to whom I am deeply grateful. Thanks are also due Professors Underwood and Evans for allowing me to study their material.

NEW YORK BOTANICAL GARDEN.

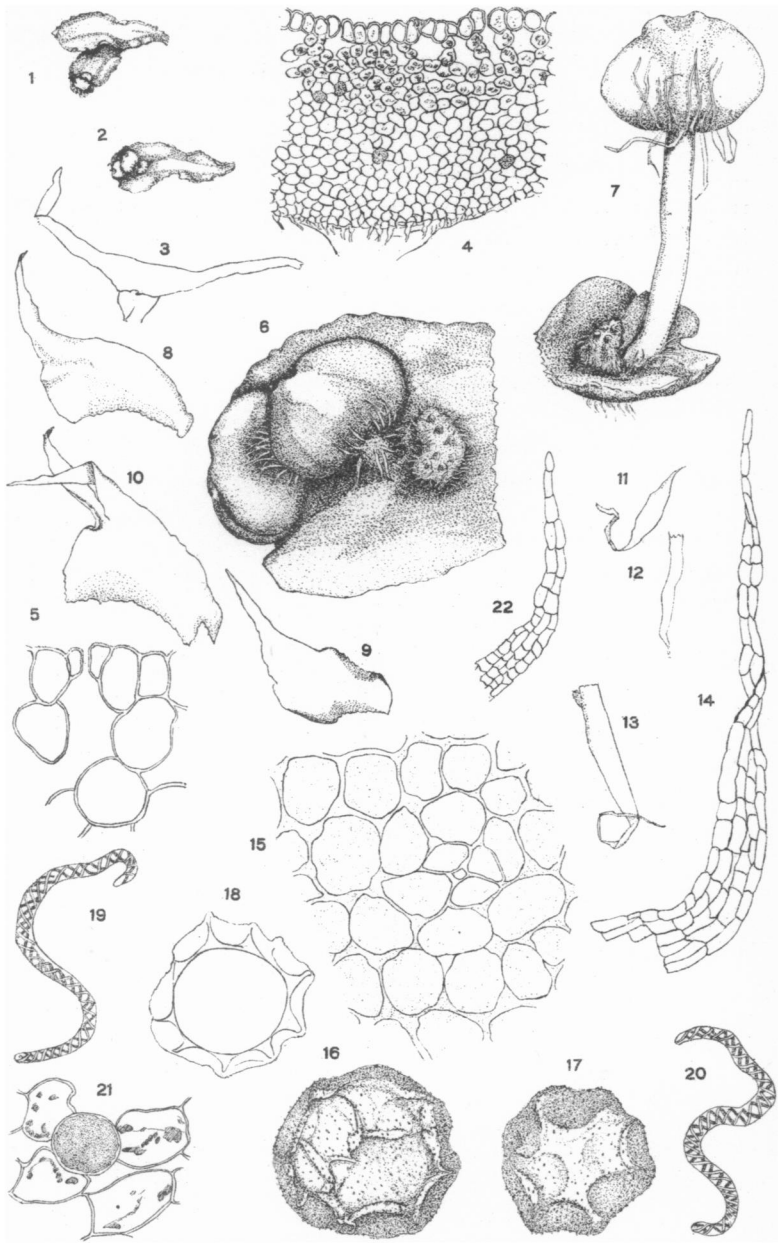
Explanation of plates 5 and 6

PLATE 5. *Aytonia Evansii* sp. nov.

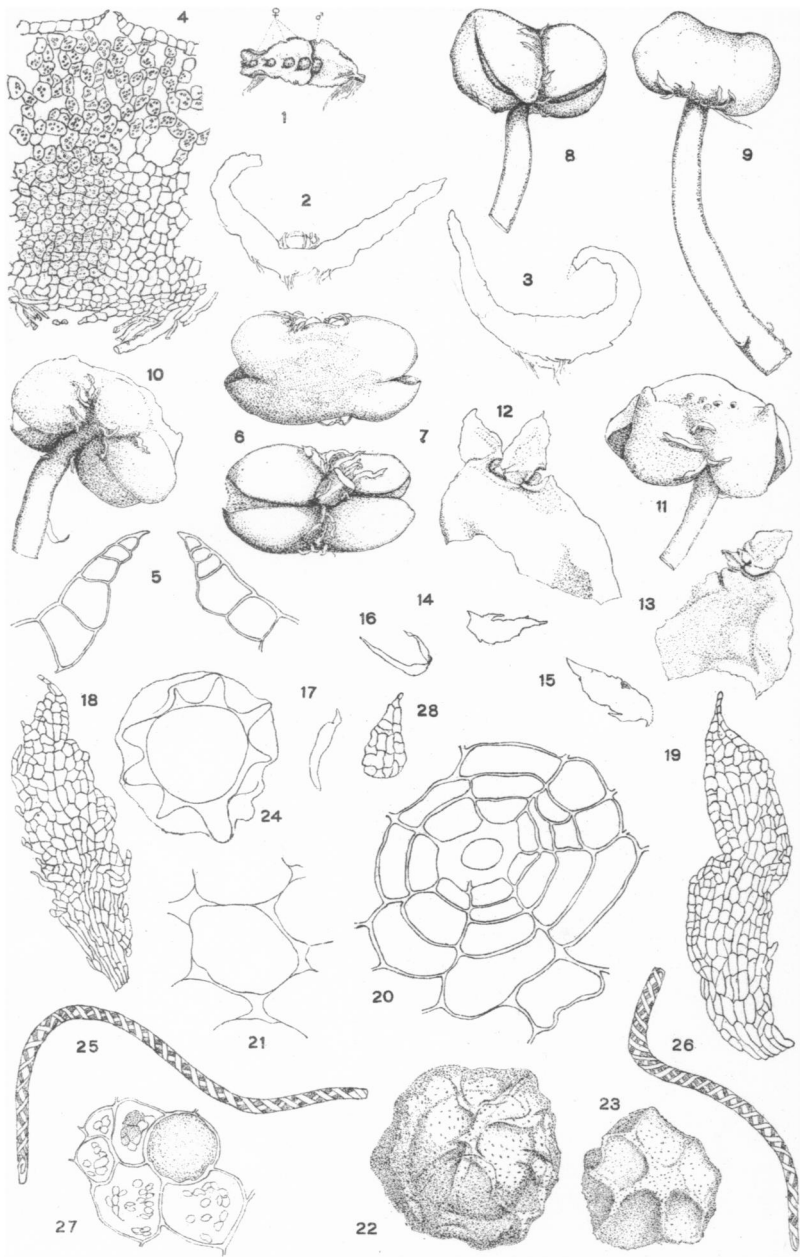
- 1 and 2. Plant, natural size.
3. Outline of cross-section of thallus, $\times 9$.
4. Median cross-section of thallus showing stomata, $\times 55$.
5. Stoma, $\times 242$.
6. Plant, showing two immature carpocephala and androecium, $\times 6$.
7. Plant, showing nearly mature carpocephalum, with peduncle 4 mm. long, and androecium, $\times 6$.
- 8 and 9. Ventral scales, $\times 13$.
10. Ventral scale showing geminate appendicula, $\times 13$.
- 11-13. Scales from the carpocephalum, $\times 13$.
14. Scale from the carpocephalum showing cells, $\times 55$.
15. Surface view of stoma ; epidermal cells and trigones, $\times 360$.
16. Spore, inner face, $\times 250$.
17. Spore, outer face, $\times 250$.
18. Spore, optical section, $\times 242$.
19. Elater, 3-spiral, $\times 175$.
20. Elater, 2-spiral, $\times 175$.
21. Oil-body completely filling cell, $\times 250$.
22. Scale from androecium, $\times 55$.

PLATE 6. *Aytonia jamaicensis* sp. nov.

1. Plant, natural size.
- 2 and 3. Outlines of cross-sections of thallus, $\times 9$.
4. Median cross-section of thallus showing stoma, $\times 55$. The fungal hyphae shown here in certain cells were found in almost all specimens examined and occur generally through the ventral portions of the thallus.
5. Stoma, $\times 242$.
- 6 and 7. Upper and lower sides of a single immature carpocephalum, $\times 6$.
- 8 and 9. Opposite sides of a single carpocephalum with two mature sporogonia, no. 8 showing upper portion of peduncle, $\times 6$.
- 10 and 11. Opposite sides of a single carpocephalum showing the mature sporogonia, a third abortive one, and upper portion of peduncle, $\times 6$.
12. Ventral scale showing geminate appendicula, $\times 17$.
13. Ventral scale showing single appendiculum, $\times 17$.
- 14-17. Scales from the carpocephalum, $\times 13$.
- 18 and 19. Scales from the carpocephalum showing cells, $\times 55$.
20. Surface view of stoma, $\times 360$.
21. Surface view of epidermal cell and trigones, $\times 250$.
22. Spore, inner face, $\times 250$.
23. Spore, outer face, $\times 250$.
24. Spore, optical section, $\times 242$.
25. Elater, 2-spiral, $\times 182$.
26. Elater, 3-spiral, $\times 175$.
27. Oil-body completely filling cell, $\times 250$.
28. Scale from androecium, $\times 55$.



AYTONIA EVANSII Haynes.



AYTONIA JAMAICENSIS Haynes.